Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Corrections related to Idle Mode Operations**
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Re:	This is a response to Call for maintenance comments to IEEE 802.16e-2005.
Abstract	This contribution is a supporting file to a comment related to MS Idle Mode operation submitted by NextWave to WimaxForum MTG
Purpose	Agree and adopt.
Notice	
Release	
Patent Policy and Procedures	

MS Idle Mode Corrections

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The following changes are all related and should be considered together and not separately. The changes in this contribution supersedes the resolution of MTG comments 130 and 383.

Change 1

802.16e, Page 124, section 6.3.2.3.47:

This change incorporates and overrides resolution of MTG comment 130

6.3.2.3.47 Neighbor Advertisement (MOB_NBR-ADV) message

…

~~When Mobility Feature Supported bit indicate support for idle mode, following TLV parameters may be included:~~

~~**Paging Group ID (16 bit)**~~

~~One or more logical affiliation groupings of BS~~

The following TLV parameters may be included.

DCD_settings

The DCD_settings is a TLV value that encapsulates a DCD message (excluding the generic MAC header and CRC) that may be transmitted in the advertised BS downlink channel. This information is intended to enable fast synchronization of the MS with the advertised BS downlink. The DCD_settings fields shall contain only neighbor's DCD TLV values that are different from the serving BS corresponding values. For values that are not included, the MS shall assume they are identical to the corresponding values of the serving BS. The duplicate TLV encoding parameters within a Neighbor BS shall not be included in DCD setting.

If the set of paging groups with which the neighbor BS is affiliated is different from the set of paging groups with which the Serving BS is affiliated, the Paging Group ID TLV, containing all the paging groups with which the neighbor BS is affiliated, shall be include d.

Change 2

802.16e, Page 674, section 11.4.1
In Table 358—DCD channel encoding (continued): This change incorporates and overrides the resolution of MTG comment 130.

11.4.1 DCD channel encodings

…

Name	Type (1 byte)	Length	Value (variable length)	PHY scope
…				
Paging Group ID	35	Length is defined as: (Num of Paging Group ID) * 2	~~One or more logical affiliation grouping of BS (see 6.3.2.3.55)~~ List of Paging Group IDs with which the BS is logically affiliated. Starting from the first byte, every 2 bytes contains one Paging Group ID value. When	—

			the Paging Group ID TLV is part of a compound DCD_settings TLV (refer to subclause 11.18.x), a value of 0 means that the neighbor BS is not affiliated with any paging group.	
…				

Change 3

802.16e, Page 664, section 11.1.7
11.1.7 MOB-NBR-ADV message encodings

The TLVs in this section are not common. Move the contents of this section to section 11.18.x. Also correct the cross-references to this section.

Change 4

802.16e, Page 661:
Insert text from 802.16-2004 section 11.1 and update Table 346 with all the new common TLVs introduced in 802.16e and in this corrigendum.
11.1 Common encodings

Common TLV fields and their associated type codes are presented in Table 346.

Table 346-Type values for common TLV encodings

Type	Name
149	HMAC tuple
148	MAC version encoding
147	Current transmit power
146	Downlink service flow
145	Uplink service flow
144	Vendor ID encoding
143	Vendor-specific information
142	
141	CMAC tuple
140	Short-HMAC tuple
139	Enabled-Action-Triggered
138	SLPID_Update
137	Next Periodic Ranging
136	MAC Hash Skip Threshold
135	Paging Controller ID
134	Paging Information

In Table 348a, change type from 150 to 141, and in Table 348c, change type from 151 to 140, since types 150 and up are reserved for PHY specific encodings. This change incorporates and overrides resolution of MTG comment 383.

Table 348a—CMAC Tuple definition

Type	Length	Value	Scope
~~150~~141	13 or 19	See Table 348b	DSx-REQ, DSx-RSP, DSx-ACK, REG-REQ,REG-RSP, RES-CMD, DREG-CMD, TFTP-CPLT,~~PKM-REQ, PKM-RSP~~, MOB_SLP-REQ,MOB_SLP-RSP, MOB_SCN-REQ, MOB_SCN-RSP,MOB_BSHO-REQ, MOB_MSHO-REQ,MOB_BSHO-RSP, MOB_HO-IND, DREG-REQ, RNG-REQ, RNG-RSP

The CMAC tuple is added to the RNG-REQ message only during handover, secure location update or network re-entry from idle mode. This tuple shall be included in the messages if the MS and the BS share a valid AK.

Change 5

802.16e, Page 265, sections 6.3.24.8.1.1, 6.3.24.8.2.1:

The following text is written as if the BS belonged to only one paging group. This is not true. The BS may belong to more than one paging group. Make the following changes:

6.3.24.8.1.1 Paging Group update

The MS shall perform the Location Update process when the MS detects a change in paging group. The MS shall detect the change of paging group by monitoring the paging group identifiers, Paging Group IDs, which ~~is~~are transmitted by the Preferred BS in the DCD message or MOB_PAG-ADV broadcast message during the MS Paging Listening Interval. If the Paging Group IDs detected do~~es~~ not ~~match~~include the Paging Group to which the MS belongs, the MS shall determine that the paging group has changed.

6.3.24.8.2.1 Secure Location Update process

If the MS shares a valid security context with the target BS such that the MS may include a valid HMAC/CMAC Tuple in the RNG-REQ, then the MS shall conduct initial ranging with the target BS by sending a RNG-REQ including Ranging Purpose Indication TLV with Bit #1 set to 1, Location Update Request and Paging Controller ID TLVs and HMAC/CMAC Tuple. If the target BS evaluates the HMAC/CMAC Tuple as valid and can supply a corresponding authenticating HMAC/CMAC Tuple, then the target BS shall reply with a RNG-RSP including the Location Update Response TLV and HMAC/CMAC Tuple completing the Location Update process. If the ~~P~~paging ~~G~~group ~~ID~~ has changed, then target BS shall include a Paging Group ID TLV in the RNG-RSP. If the target BS responds with a successful Location Update Response=0x00, Success of Location Update, the target BS shall notify the Paging Controller via the backbone of the MS new location information, the MS shall assume the Paging Group ID ~~of~~ received from the target BS, and the Paging Controller may send a backbone message to inform the BS at which the MS entered Idle Mode that the MS has transitioned to a different Paging Group. If the target BS evaluates the HMAC/CMAC Tuple as invalid, cannot supply a corresponding authenticating HMAC/CMAC Tuple, or otherwise elects to direct the MS to use Unsecure Location Update, then the target BS shall instruct the MS to continue network re-entry using the Unsecure Location Update process by inclusion of Location Update Response TLV in RNG-RSP with a value of 0x01= Failure of Location Update.

Change 6

802.16e, Page 267, section 6.3.24.8.2.2:

Since the target BS may elect to direct the MS to use Unsecure Location Update for other reasons than failed authentication (see section 6.3.24.8.2.1), it is incorrect to assume that the MS and BS do not share current, valid security context as written below. When the MS that has established a security context with the network re-enters the network, it shall include the HMAC/CMAC unless it can determine by other means that the security context is not valid (e.g., it was not able to validate the RNG-RSP from the BS).

Change the text as follows:

6.3.24.8.2.2 Unsecure Location Update process

~~For~~ If an MS and target BS ~~that~~ do not share a current, valid security context, or if the BS for any reason has elected to instruct the MS to use Unsecure Location Update, they shall process Location Update using the Network Re-Entry from Idle Mode method.